AMENDMENTS TO THE CLAIMS:

Please enter the following claims:

1. (Currently amended) A method of forming a configurable array of probes comprising:

generating a plurality of movable optical traps simultaneously within a vessel;

providing at least two probes, each with one of a known binding and reactivity characteristic, within the vessel;

selecting at least said two probes for inclusion in a ~~three dimensional~~ communal diffusional spatial array based on said known binding and reactivity characteristics;

containing each of the selected probes with ~~an~~ one of said optical ~~trap~~ traps to form the array; and

selectively tracking at least one of the two probes using said one of the optical ~~trap~~ traps which contains ~~it~~ said one probe.

2. (Previously Amended) The method of claim 21, further comprising:

altering a position of at least one probe in the array by moving the optical trap containing the probe.

3. (Previously Amended) The method of claim 21, wherein the optical traps are formed of two or more of optical tweezers, optical vortices, optical bottles, optical rotators, and light cages.

4. (Original) The method of claim 2, wherein each optical trap is independently movable.

5. (Previously Amended) The method of claim 2, wherein a movement of each optical trap is controlled by a computer.

6. (Previously Amended) The method of claim 4, wherein a movement of each optical trap is controlled by a computer.

7. (Previously Amended) The method of claim 4, wherein at least one of the two probes is selected by measuring a spectrum of the at least one probe and using a spectrum measurement to select the at least one probe.

8. (Previously Amended) The method of claim 4, wherein at least one of the probes is selected by segregating the at least two probes, by known characteristics, at pre-determined locations within the vessel and using a location of each segregated probe to select the probe.

9. (Previously Amended) The method of claim 8, further comprising:

placing the selected probes into at least one physical sub-cell disposed within the vessel.

10. (Original) The method of claim 9, wherein the sub-cell is an optical sub-cell.

11. (Previously Amended) The method of claim 21, wherein the probe is a biological material.

12. (Previously Amended) The method of claim 21, wherein the probe is a chemical material.

13. (Original) The method of claim 11, wherein the target is a biological material.

14. (Original) The method of claim 11, wherein the target is a chemical material.

15. (Original) The method of claim 12, wherein the target is a biological material.

16. (Original) The method of claim 12, wherein the target is a chemical material.

17. (Previously Amended) The method of claim 11, wherein the probe is one of an oligonucleotide, a polynucleotide, a chemical compound, a protein, a saccharide, a ligand, a cell, an antibody, an antigen, a cellular organelle, a lipid, a blastomere, an aggregations of cells, a microorganism, a peptide, cDNA, and RNA, or combinations thereof.

18. (Previously Amended) The method of claim 13, wherein the biological material is one of an oligonucleotide, a polynucleotide, a chemical compound, a protein, a saccharide, a ligand, a cell, an antibody, an antigen, a cellular organelle, a lipid, a blastomere, an aggregations of cells, a microorganism, a peptide, cDNA, and RNA, or a combination thereof.

19. (Previously Amended) The method of claim 15, wherein the target is selected from one or more of the group consisting of an oligonucleotide, a polynucleotide, a chemical compound, a protein, a saccharide, a ligand, a cell, an antibody, an antigen, a cellular organelle, a lipid, a blastomere, an aggregations of cells, a microorganism, a peptide, cDNA, and RNA, or a combination thereof.

20. (Canceled)

21. (Previously Amended) The method of claim 1, wherein at least some of the probes are [all] either one of bound to a substrate and unbound to a substrate.

22. (Canceled)

23. (Currently amended) A method of forming a dynamic, configurable array of probes comprising:

generating a plurality of movable optical traps simultaneously within a vessel;

monitoring the optical traps;

providing at least two probes, each with one of a known binding and reactivity characteristic, within the vessel;

selecting at least said two probes for inclusion in a ~~three dimensional~~ communal diffusional spatial array based on said known binding and reactivity characteristics;

containing each of the selected probes with ~~an~~ one of said optical ~~trap~~ traps to form the array; and

selectively tracking at least one of the selected probes using said one of the optical ~~trap~~ traps which contains ~~it~~ said one probe.

24. (Previously Amended) The method of claim 20, further comprising:

altering a position of at least one probe in the array by moving the optical trap containing the probe.

25. (Previously Amended) The method of claim 54, the method further comprising:

producing an optical data stream.

26. (Original) The method of claim 24, wherein each optical trap is independently movable.

27. (Previously Amended) The method of claim 24, wherein a movement of each optical trap is controlled by a computer.

28. (Previously Amended) The method of claim 25, further comprising:

receiving the optical data-stream with a computer.

29. (Previously Amended) The method of claim 28, the method further comprising:

analyzing the optical data stream with the computer.

30. (Previously Amended) The method of claim 29, wherein the computer directs the movement of at least one optical trap based on an analysis of the optical data stream.

31. (Previously Amended) The method of claim 25, further comprising:

converting the optical data-stream to a video signal.

32. (Previously Amended) The method of claim 31, further comprising:

receiving the video signal with a computer.

33. (Previously Amended) The method of claim 32, further comprising:

analyzing the video signal with the computer.

34. (Previously Amended) The method of claim 33, further comprising:

using the computer to direct a movement of one or more optical traps based on the analysis of the video signal.

36. (Previously Amended) The method of claim 35, further comprising:

viewing the image and directing a movement of one or more optical traps based on the viewing of that image.

37. (Previously Amended) The method of claim 25, further comprising:

analyzing a spectrum of the optical data-stream.

38. (Previously Amended) The method of claim 37, further comprising:

using a computer to direct a movement of one or more optical traps based on the analysis of spectrum of the optical data stream.

39. (Previously Amended) The method of claim 54, further comprising:

forming two or more of one of optical tweezers, optical vortices, optical bottles, optical rotators, and light cages.

40. (Previously Amended) The method of claim 26, wherein a movement of each optical trap is controlled by a computer.

41. (Previously Amended) The method of claim 54, wherein at least one of the selected probes is selected by measuring a spectrum of at least one probe and using the spectral measurement to select the probe.

42. (Previously Amended) The method of claim 24, wherein at least one of the selected probes is selected by segregating the probes, by known characteristics, at pre-determined locations within the vessel and using a location of each probe as a criteria to select the probe.

43 (Previously Amended) The method of claim 42, further comprising:

placing the selected probes into at least one physical sub-cell disposed within the vessel.

44 (Original) The method of claim 42, wherein the sub-cell is an optical sub-cell.

45 (Previously Amended) The method of claim 54, wherein the probe is a biological material.

46. (Previously Amended) The method of claim 54, wherein the probe is a chemical material.

47. (Original) The method of claim 46, wherein the target is a biological material.

48. (Original) The method of claim 46, wherein the target is a chemical material.

49. (Original) The method of claim 45, wherein the target is a biological material.

50. (Original) The method of claim 45, wherein the target is a chemical material.

51. (Previously Amended) The method of claim 45, wherein the probe is one of an oligonucleotide, a polynucleotide, a chemical compound, a protein, a saccharide, a ligand, a cell, an antibody, an antigen, a cellular organelle, a lipid, a blastomere, an aggregations of cells, a microorganism, a peptide, cDNA, and RNA, or combination thereof.

52. (Previously Amended) The method of claim 47, wherein the target is one of an oligonucleotide, a polynucleotide, a chemical compound, a protein, a saccharide, a ligand, a cell, an antibody, an antigen, a cellular organelle, a lipid, a blastomere, an aggregations of cells, a microorganism, a peptide, cDNA, and RNA, or a combination thereof.

53. (Previously Amended) The method of claim 49, wherein the target is selected from one or more of the group consisting of an oligonucleotide, a polynucleotide, a chemical compound, a protein, a saccharide, a ligand, a cell, an antibody, an antigen, a cellular organelle, a lipid, a blastomere, an aggregations of cells, a microorganism, a peptide, cDNA, and RNA, or a combination thereof.

54. (Previously Amended) The method of claim 23, wherein at least some of the probes are either one of bound and unbound to a substrate.

55. (Canceled)

56. (Canceled)

57. (Currently amended) A method of assaying biological material comprising:

generating a plurality of movable optical traps simultaneously within a vessel;

providing a fluid media in the vessel;

providing at least two probes, each with a known characteristic for one of binding and reacting with a biological target, within the vessel;

selecting at least two probes for inclusion in a ~~three dimensional~~ communal diffusional spatial array based on said one of binding and reacting characteristic;

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containing each of the selected probes with said one of the optical ~~trap~~ traps;

introducing into the vessel biological targets; and,

determining whether a reaction takes place, between each of the selected probes with each of the targets.

58. (Previously Amended) The method of claim 57, further comprising:

tracking each probe of the selected probes throughout the assay using the optical trap which contains it.

59. (Original) The method of claim 57, wherein the probe is a biological material.

60. (Original) The method of claim 57, wherein the probe is a biological material.

61. (Previously Amended) The method of claim 59, wherein the probe is one of an oligonucleotide, a polynucleotide, a chemical compound, a protein, a saccharide, a ligand, a cell, an antibody, an antigen, a cellular organelle, a lipid, a blastomere, an aggregation of cells, a microorganism, a peptide, cDNA, and RNA, or combination thereof.

62. (Previously Amended) The method of claim 57, wherein the target is one of an oligonucleotide, a polynucleotide, a chemical compound, a protein, a saccharide, a ligand, a cell, an antibody, an antigen, a cellular organelle, a lipid, a blastomere, an aggregation of cells, a microorganism, a peptide, cDNA, and RNA, or combination thereof.

63. (Currently amended) A method for assaying biological material comprising:

generating a plurality of movable optical traps simultaneously within a vessel;

providing a fluid media in the vessel;

monitoring the optical traps;

providing at least two probes, each with a known characteristic for one of binding and reacting with a biological target, within the vessel;

selecting at least two probes for inclusion in a ~~three dimensional~~ communal diffusional spatial array based on said one of binding and reacting characteristic;

containing each of the selected probes with one of the optical ~~trap~~ traps;

introducing into the vessel biological targets; and

determining whether a reaction takes place, between each of the probes with each of the targets.

64. (Previously Amended) The method of claim 63, further comprising:

tracking each probe throughout the assay using the optical trap which contains it.

65. (Previously Amended) The method of claim 63, further comprising:

altering a position of at least one probe in the array by moving the optical trap containing the probe.

66. (Previously Amended) The method of claim 63, further comprising:

producing an optical data stream.

67. (Previously Amended) The method of claim 65, wherein each optical trap is movable independently of other probes.

68. (Previously Amended) The method of claim 65, wherein a movement of each optical trap is controlled by a computer.

69. (Previously Amended) The method of claim 66, further comprising:

receiving the optical data-stream with a computer.

70. (Previously Amended) The method of claim 69, further comprising:

analyzing the optical data stream with the computer.

71. (Previously Amended) The method of claim 70, further comprising:

using the computer to direct a movement of one or more optical traps based on the analysis of the optical data stream.

72. (Previously Amended) The method of claim 66, further comprising:

converting the optical data-stream to a video signal.

73. (Previously Amended) The method of claim 72, further comprising:

receiving the video signal with a computer

74. (Previously Amended) The method of claim 73: further comprising:

analyzing the video signal with the computer.

75. (Currently amended) The method of claim 74, further comprising:

using the computer to direct movement of one or more optical traps based on the analysis of the video signal.

76. (Original) The method of claim 72, wherein the video signal is used to produce an image.

77. (Previously Amended) The method of claim 76, further comprising:

viewing the image and directing the movement of one or more optical traps based on the viewing of that image.

78. (Previously Amended) The method of claim 66, further comprising:

analyzing a spectrum of the optical data-stream.

79. (Previously Amended) The method of claim 78, further comprising:

using a computer to direct movement of one or more optical traps based on the analysis of spectrum of the optical data stream.

80. (Previously Amended) The method of claim 63, further comprising:

forming two or more different classes of optical traps selected from the group consisting of optical tweezers, optical vortices, optical bottles, optical rotators, and light cages.

81. (Previously Amended) The method of claim 63, wherein at least one of the probes is either one of bound and unbound to a substrate.

82. (Canceled)

83. (Previously Amended) The method of claim 81, wherein each of the substrates which bind the probes having the same known characteristic contain the same label.

84. (Original) The method of claim 84, wherein the label is a wavelength specific material within the substrate which responds to light in a specific range of wavelengths.

85. (Previously Amended) The method of claim 84, wherein at least one of the probes is selected by measuring a spectral response of at least one probe and using the spectral measurement to determine whether to contain the probe.

86. (Previously Amended) The method of claim 63, wherein at least one selected probe is accomplished by segregating the probes, by each known characteristic, at pre-determined locations within the vessel and using a location of each probe to select the probe.

87. (Previously Amended) The method of claim 63, further comprising:

placing the selected probes into at least one physical sub-cell disposed within the vessel.

88. (Previously Amended) The method of claim 86, wherein the sub-cell is an optical sub-cell.

89. (Currently amended) A method of forming a configurable array of probes comprising:

generating a plurality of movable optical traps simultaneously within a vessel;

providing at least two probes, each with one of a known binding and reactivity characteristic, within the vessel; and,

configuring a ~~three dimensional~~ communal diffusional spatial array of at least two probes based on said known binding and reactivity characteristic by selecting each probe with an optical trap.

90. (Currently amended) A method of forming a configurable array of probes comprising:

directing a focused beam of light at a beam altering optical element to form a plurality of beamlets;

overlapping the beamlets at a back aperture of a focusing lens;

passing the beamlets through the focusing lens and converging the beamlets to simultaneously generate a plurality of movable optical traps within the vessel;

providing a plurality of probes, each with one of a known binding and reactivity characteristic, within the vessel;

selecting at least two probes for inclusion in a ~~three dimensional~~ communal diffusional spatial array based on said known binding and reactivity characteristic;

containing each of the selected ~~probe~~ probes with one of the optical ~~trap~~ traps; and,

altering a position of at least one of the probes ~~probe~~ by moving the one of the optical ~~trap~~ traps containing the selected probe.

91. (Original) The method of claim 90 wherein the beam altering optical element has a static surface.

92. (Currently amended) The method of claim 91, wherein the static surface is comprised of two or more ~~discreet~~ discrete non-homogenous regions.

93. (Currently amended) The method of claim 92, wherein a position of at least one probe trap is altered by changing a one discrete non-homogenous region of the static surface receiving the beam of light for another discrete non-homogenous region.

94. (Currently amended) The method of claim ~~92~~ 93, wherein the discrete non-homogenous regions of the static surface ~~is~~ are continuously ~~varying~~ varied.

95. (Previously Amended) The method of claim 91, wherein a position of the at least one optical trap is altered by changing a region of the static surface receiving the beam of light .

96. (Previously Amended) The method of claim 91, wherein the beam altering optical element is one of a grating, a diffraction grating, a reflective grating, a transmissive grating, a hologram, a stencil, a light shaping holographic filter, a polychromatic hologram, a lens, a mirror, a prism, a waveplate and a hologram.

97. (Previously Amended) The method of claim 92, wherein each discrete non-homogeneous region is one of a grating, a diffraction grating, a reflective grating, a transmissive grating, a hologram, a stencil, a light shaping holographic filter, a polychromatic hologram, a lens, a mirror, a prism, a waveplate and a hologram.

98. (Previously Amended) The method of claim 90, wherein the beam altering optical element is dynamic.

99. (Previously Amended) The method of claim 98, wherein a position of the at least one optical trap is altered by varying the dynamic beam altering optical element.

100. (Previously Amended) The method of claim 99, wherein varying the dynamic beam altering optical element alters a phase profile of the at least one of the beamlets.

101. (Previously Amended) The method of claim 100, wherein the optical trap generated by a change in phase profile is one of an optical tweezer, an optical vortex, an optical bottle, an optical rotator, and a light cage.

102. (Previously Amended) The method of claim 93, wherein changing the discrete non-homogeneous region alters the phase profile of the at least one of the beamlets.

103. (Previously Amended) The method of claim 102, wherein the optical trap generated by a change in phase profile is one of an optical tweezer, an optical vortice, an optical bottle, an optical rotator, and a light cage.

104. (Currently amended) A method of assaying biological material comprising:

generating a plurality of movable optical traps simultaneously within a vessel;

providing a fluid media in the vessel;

monitoring the optical traps;

providing biological material within the vessel;

illuminating the biological material with a source suitable for spectral measurement;

measuring the spectrum of the biological material;

using the spectral measurement to select the biological material to use as at least one biological probe ~~probes~~ in a ~~three dimensional~~ communal diffusional spatial array;

containing at least one of the selected biological probes with ~~an~~ one of the optical ~~trap~~ traps;

introducing into the vessel biological targets; and,

determining whether a reaction takes place, between each of the biological probes with each of the biological targets.

168. (Canceled)

169. (Canceled)

170. (Canceled)

171. (Canceled)

172. (~~Currently amended~~) - (Canceled)